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09/624,438	07/24/2000	Xiaopin Zhang	GR 99 P 2378	5408

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EXAMINER

NGUYEN, LINH M

ART UNIT PAPER NUMBER

2816

DATE MAILED: 05/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/624,438

Applicant(s)

ZHANG ET AL.

Examiner

Linh M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 07 March 2003.

2a) ☐ This action is FINAL.

2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 12-27 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 12-27 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☒ The proposed drawing correction filed on 24 September 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some * c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.

4) ☐ Interview Summary (PTO-413) Paper No(s). _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other:

DETAILED ACTION

This is a reply to the Applicant's amendment submitted on 03/07/2003. According to this amendment, claim 11 is canceled, claims 22-27 are newly added; thus claims 12-27 are now presented in this instant application.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 12-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Price, Jr. (U.S. Patent No. 5,635,863).

With respect to claim 13, Price, Jr. discloses, in Figure 2, a controllable current source circuit, comprising 1) an output [Von], 2) a supply voltage terminal [Vcc] and a reference potential terminal [Vee], 3) a first driver stage [Q3] having a first controlled path containing a first transistor [Q3], and 4) a second driver stage (*transistor connected in series with Q3*) having a second controlled path containing a second transistor; wherein a) the first and second controlled paths are connected in series between the voltage supply terminal and the reference potential terminal, b) the second driver stage forms a part of a current mirror circuit causing a constant stabilized current to flow in the second driver stage; and c) only the first driver stage switches on and off in dependence on an input signal [In], and the second driver stage is switched on and carries a stabilized current.

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With respect to claim 12 (*depending on claim 13*), Price, Jr. discloses, in Figure 2, a first driver stage forms a part of current mirror circuit receiving a flow of a stabilized current when the first driver stage is switched on.

With respect to claim 14, Price, Jr. discloses, in Figure 2, that the current mirror circuit is coupled to a current mirror circuit connected to the first driver stage and causes a current to flow in the current mirror circuit connected to the first driver stage [Q3].

With respect to claim 15, Price, Jr. discloses, in Figure 2, that a current carried by the first driver stage when the first driver stage is switched on is greater than a current carried by the second driver stage (*in order for node Von to be high current of the first driver stage, Q3, has to be higher than the current of the second driver stage*).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Price, Jr. (U.S. Patent No. 5,635,863).

With respect to claims 16 and 17, Price, Jr. discloses all the claimed limitations, as expressly recited in claims 13 and 15, except for specifying that the current carried in the first driver stage is multiple/four times greater than the current carried by the second driver stage.

It would have been an obvious matter of preference bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to

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choose the particular claimed relative current range limitations because applicant has not disclosed that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical, and it appears prima facie that the process would possess utility using another relative current range. Indeed, it has been held that optimization of range limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See MPEP 2144.05(II): "Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. '[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.'" In re Aller, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955). See also In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969), Merck & Co. Inc. v. Biocraft Laboratories Inc., 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989), and In re Kulling, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990). As set forth in MPEP 2144.05(III), "Applicant can rebut a prima facie case of obviousness based on overlapping ranges by showing the criticality of the claimed range. 'The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range.' In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP § 716.02 - § 716.02(g) for a discussion of criticality and unexpected results."

5. Claims 18-19 and 21-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Price, Jr. (U.S. Patent No. 5,635,863) in view of Olgaard et al. (U.S. Patent No. 5,939,949).

With respect to claim 18, Price, Jr. discloses, in Fig. 2, all of the claimed limitations as expressly recited in claim 13, including a phase comparator having (1) a phase comparison circuit with a reference signal input for receiving a reference signal and an input for receiving an input signal whose phase angle is to be regulated, and (2) a controllable current source circuit on an output side of said phase comparator.

Price, Jr. fails to show a phase locked loop having a loop filter connected to the current source circuit and having an output for outputting an output signal for controlling the phase angle of the input signal.

Olgaard et al. discloses, in Fig. 2, a phase locked loop having a loop filter connected to a current source circuit and having an output for outputting an output signal for controlling the phase angle.

It would have been obvious to one of ordinary skill in the art at the time of the invention to configure Price, Jr.'s phase comparison circuit in a phase locked loop having a loop filter connected to the current source of the comparison circuit as taught by Olgaard et al. for providing maximal synchronization and higher integrity output signal.

With respect to claim 19, Price, Jr. discloses, in Fig. 2, a comparison circuit [24] containing a comparator configured to switch between two outputs states and having a single output terminal connected to the current source circuit.

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With respect to claim 21, Price, Jr. discloses, in Fig. 2, a current mirror circuit being connected to the comparison circuit for stabilizing a current flowing into the phase comparison circuit and into the second driver stage.

With respect to claim 22, Price, Jr. discloses, in Fig. 2, first driver stage [Q3] of the controllable current source circuit forms a part of a current mirror circuit receiving a flow of a stabilized current when said first driver stage is switched on.

With respect to claim 23, Price, Jr. discloses, in Fig. 2, that the current mirror circuit of the controllable current source circuit is coupled to a current mirror circuit connected to the first driver stage and causes a stabilized current to flow in the current mirror circuit connected to the first driver stage.

With respect to claim 24, Price, Jr. discloses, in Fig. 2, that a current carried by said first driver stage of the controllable current source circuit when the first driver stage is switched on is greater than a current carried by said second driver stage (*in order for node Von to be high current of the first driver stage, Q3, has to be higher than the current of the second driver stage*).

With respect to claims 16 and 17, Price, Jr. discloses all the claimed limitations as expressly recited in claims 13 and 15, except for citing that the current carried in the first driver stage is multiple/four times greater than the current carried by the second driver stage.

With respect to claims 25 and 26, the combination of Price, Jr. and Olgaard et al. discloses all the claimed limitations as expressly recited in claims 13, 18, and 24, except for specifying that the current carried in the first driver stage is multiple/four times greater than the current carried by the second driver stage.

It would have been an obvious matter of preference bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose the particular claimed relative current range limitations because applicant has not disclosed that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical, and it appears prima facie that the process would possess utility using another relative current range. Indeed, it has been held that optimization of range limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See MPEP 2144.05(II): "Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. '[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.'" In re Aller, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955). See also In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969), Merck & Co. Inc. v. Biocraft Laboratories Inc., 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989), and In re Kulling, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990). As set forth in MPEP 2144.05(III), "Applicant can rebut a prima facie case of obviousness based on overlapping ranges by showing the criticality of the claimed range. 'The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the

prior art range.' In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP § 716.02 - § 716.02(g) for a discussion of criticality and unexpected results."

With respect to claim 27, Price, Jr. discloses, in Fig. 2, that the second driver stage includes 1) a circuit node (*node at left of 11 reference numeral*); 2) a control electrode; 3) a first and a second current path connected between the supply voltage terminal [Vcc] and the circuit node; 4) one of the first and the second current paths forming a part of the current mirror circuit connected to the first driver stage [Q3], and 5) a transistor connected between the circuit node and the reference potential terminal [Vee], the transistor having a transistor control electrode connected to the control electrode of the second driver stage (*transistor connected in series with Q3*).

6. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Price, Jr. (U.S. Patent No. 5,635,863) and Olgaard et al. (U.S. Patent No. 5,939,949) as applied to claims 13 and 18 above, and further in view of Goldman (U.S. Patent No. 6,256,362).

With respect to claim 20, the combined teachings of Price, Jr. and Olgaard et al. disclose all of the claimed limitations, as expressly recited in claims 13 and 18 above, except for the phase comparison circuit containing an exclusive-OR gate.

Goldman discloses, in col. 1, lines 21-23; and col. 2, lines 59-61, a phase detector that is exclusive-OR gate-based.

It would have been obvious to one of ordinary skills in the art at the time of the invention to implement the phase detector of the combination of Price, Jr. and Olgaard et al. with an exclusive-OR gate for phase comparison since Goldman teaches that such a configuration

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possesses the desirable characteristic of good noise immunity (*see Goldman col. 1, lines 21-23; and col. 2, lines 59-61*).

Remarks

7. Upon reconsideration the allowability under objections of claims 13-17 is withdrawn in view of the newly discovered reference to Price, Jr. (U.S. Patent No. 5,635,863) and Goldman (U.S. Patent No. 6,256,362).

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh M. Nguyen whose telephone number is (703) 305-0414. The examiner can normally be reached on Alternate Mon, Tuesday - Friday from 7:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy P Callahan can be reached on (703) 308-4876. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-0142 for regular communications and (703) 305-0142 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Linh M. Nguyen
Examiner
Art Unit 2816

LMN
May 22, 2003

